

REMARKS

Claims 1-22 are pending. By this Amendment, claims 1, 5, 6, 9, 10 and 16 are amended, and claims 21 and 22 are added. The claims are amended to even more clearly distinguish over the applied reference. In particular, independent claims 1 and 9 are amended to clarify that both the opening and the closing of the exhaust valve occur after an intake stroke. Independent claims 5 and 10 are amended to clarify that the step of introducing the exhaust gas in the stratified state is started after the intake stroke and after air intake (which is performed by the intake valve) into the combustion chamber is completed. These amendments are supported by the original specification at, for example, paragraph [0039] and Fig. 3A. Claims 6 and 16 are amended in a manner similar to claims 1 and 9, and claims 21 and 22 are added, and recite features similar to those features added to claims 5 and 10. Thus, no new matter is added by the above amendments.

Information Disclosure Statement

The Examiner is requested to consider the information submitted in the Information Disclosure Statement filed on April 5, 2005.

All Pending Claims are Patentable

Claims 1-3, 9, 13 and 14 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,682,854 to Ozawa. This rejection is respectfully traversed.

On page 2, the Office Action states that Ozawa discloses "opening and closing the exhaust valve 35 in the vicinity of bottom dead center after the intake stroke and after the intake valve 33 closes near bottom dead center to improve fuel consumption (column 8, lines 57-63)." Applicant respectfully submits that this understanding of Ozawa is not correct for at least two reasons. First, the opening and closing of exhaust valve 35 do not occur after the intake stroke. The opening and closing of the exhaust valve 35 are shown as the curve C2 in Ozawa Fig. 14. As can be appreciated from Fig. 14, the opening of the exhaust valve

occurs during the intake stroke (that is, prior to bottom dead center). Thus, while the closing of the exhaust valve 35 may occur after the intake stroke, the opening of the exhaust valve does not occur after the intake stroke. Second, the opening and closing of the exhaust valve do not occur after the intake valve 33 closes. As is clear from the curve B22, which corresponds to the movement of the intake valve 33 (see col. 8, lines 53-54 of Ozawa), the opening and closing of the exhaust valve 35 (curve C2) occur while the intake valve 33 is open. Contrary to what is stated in the Office Action, the intake valve 33 does not close near bottom dead center, but rather closes near 90° after bottom dead center. See col. 8, lines 57-59 of Ozawa.

Thus, with respect to independent claims 1 and 9, Ozawa does not disclose or suggest an arrangement or method in which the exhaust valve is opened and closed after the intake stroke in order to introduce exhaust gases into the combustion chamber. Accordingly, independent claims 1 and 9, as well as their dependent claims, are patentable over Ozawa. Withdrawal of the rejection under 35 U.S.C. §102(b) is requested.

Claims 4-8, 10-12 and 15-20 stand rejected under 35 U.S.C. §103(a) over Ozawa. This rejection is respectfully traversed.

Claims 5 and 10 have been amended to clarify that the exhaust gas in the stratified state starts being admitted into the combustion chamber after an intake stroke. As discussed above, Ozawa does not disclose or suggest starting the admission of the exhaust gas into the combustion chamber after the intake stroke. Rather, Ozawa starts admitting the exhaust gas during the intake stroke as is clear from Fig. 14.

In addition, and as is clear from Fig. 14 of Ozawa, Ozawa does not disclose or suggest starting to emit the exhaust gas into the combustion chamber after air intake into the combustion chamber is completed. This feature serves to improve the ability of the stratified exhaust gas to remain in the stratified state in the combustion chamber. As is clear from

Fig. 14 and its description, the exhaust gas in Ozawa (curve C2) is admitted into the combustion chamber while air intake (via at least the intake valve 33 associated with curve B22) admits air into the combustion chamber.

The other embodiments of Ozawa suffer from the same deficiencies noted above with respect to the Fig. 14 embodiment. As is clear from curve C1 in Figs. 4 and 6, exhaust gas is admitted during air intake and during the intake stroke (prior to bottom dead center). As is clear from curve C2 in Fig. 13, exhaust gas is admitted into the combustion chamber during air intake and during the intake stroke.

Accordingly, independent claims 5 and 10, as well as their dependent claims, also are patentable over Ozawa.

In addition, newly-added claims 21 and 22, which depend from claims 1 and 9 respectively, recite that the exhaust gas is admitted into the combustion chamber after air intake is completed. As discussed above with respect to independent claims 5 and 10, Ozawa does not disclose or suggest this feature. Thus, claims 21 and 22 are patentable over Ozawa for this additional reason.

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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Attachment:

Amendment Transmittal

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